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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,911	03/11/2004	Richard Lee Donze	ROC920030185US1	7000
<div>7590 06/13/2007 Robert R. Williams IBM Corporation, Dept. 917 3605 Highway 52 North Rochester, MN 55901-7829</div>			<div>EXAMINER CLARK, CHRISTOPHER JAY</div>	
			<div>ART UNIT 2836</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 06/13/2007</div>	<div>DELIVERY MODE PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,911	Applicant(s) DONZE ET AL.	
	Examiner Christopher J. Clark	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 11 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments with respect to claim 18 have been considered, but are not accepted by the examiner. The examiner would like to stress that though Hobson teaches the timer being programmed during start-up (Column 3 Lines 15-24), it is still capable of being programmed from one value to another.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browning et al (U. S. Patent 6,415,388) in view of Beard (U.S. Patent 6,928,559) and Nguyen (U. S. Patent Application Publication 2004/0003301).
5. In re Claim 11, Browning et al teaches the following method of improving timing margin of at least one path on a semiconductor chip (110 of Figure 4) coupled to a voltage supply (120 of Figure 4) comprising the following steps as shown in Figure 6:

- Operating the semiconductor chip at a first voltage value of the voltage supply (every voltage supply is inherently going to have an initial voltage value upon activation and it would be within skill of one in the art to select a voltage that falls within the operating parameters of the semiconductor to provide initial activation of the chip without causing damage due to excessive supply voltage)
- Detecting if a thermal fault exists (step 330)
- If a thermal fault is detected, lowering the voltage supply to a second voltage value lower than the first voltage value (step 350)
- If a thermal fault is not detected, raising the voltage supply to a third voltage value higher than the first voltage value (step 360)

6. The teaching of Browning et al has been discussed above, but does not disclose waiting for the elapse of a first predetermined time interval before raising the voltage supply to a third voltage value higher than the first voltage value if a thermal fault is not detected.

7. Beard teaches waiting a time period before adjusting the supply voltage in response to input from a temperature sensor (Column 7 Lines 7-9).

8. The advantage of waiting a time period before making adjustments to the supply voltage allows the computing device in charge of varying the voltage supply time to respond to the changes and allow any hysteresis characteristics to disperse (Column 7 Lines 4-12).

9. Browning et al discloses the claimed invention except for the additional limitation of waiting for the elapse of a first predetermined time interval before raising the voltage supply to a third voltage value higher than the first voltage value if a thermal fault is not detected. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

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wait a first predetermined time interval before raising the voltage supply as taught by Beard since Beard states that such a modification would allow the computing device in charge of varying the voltage supply time to respond to the changes and allow any hysteresis characteristics to disperse (Column 7 Lines 4-12).

10. The teaching of Browning as modified by Beard has been discussed, but does not disclose not changing a frequency of operation in response to temperature conditions.

11. Nguyen teaches that it is known to adjust only voltage or voltage and frequency in response to temperature conditions (Paragraph 9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust only voltage as opposed to adjusting both voltage and frequency since Nguyen teaches that they are known alternatives when controlling performance of a processor based on temperature measurements.

12. In re Claim 12, the method disclosed by Browning et al as discussed above discloses reducing the voltage whenever the temperature exceeds a limit value as seen in step 350. According to Browning et al's invention, after reducing voltage a first time when step 350 is carried out, it will eventually return to step 330 and determine if the temperature is over a limit. If the temperature is still above a limit, it will again reduce the voltage in step 350. Therefore, Browning et al discloses the process of subsequently lowering the voltage supply after an initial voltage lowering. The teaching of Beard involves waiting a time period between taking action, such as reducing the supply voltage. Browning et al as modified by Beard as discussed above would therefore teach placing a time delay between the subsequent reductions of the supply voltage.

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13. Browning et al as modified by Beard discloses the claimed invention except for the time period between reducing the voltage being a specific second predetermined time interval. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second predetermined time interval between subsequent reduction of the supply voltage since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

14. Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browning et al (U. S. Patent 6,415,388) in view of Beard (U.S. Patent 6,928,559) and Nguyen as applied to claim 11 above, and further in view of Temperature Sensor and System Monitor in a 10-Pin microMAX by MAXIM.

15. In re Claims 13, the teaching of Browning et al as modified by Beard has been discussed above, but does not disclose reading product data on a storage on the semiconductor chip.

16. MAXIM discloses using programmed threshold data being read to compare to incoming voltage and temperature measurements (Page 1 Lines 6-11). MAXIM discloses these values being available in a storage (Page 7 Column 2 Lines 18-20 and Page 8 Column 1 Lines 4-7).

17. The advantage of reading product data from a storage is to have threshold limit values to compare incoming measured values (Page 1 Lines 8-11).

18. Browning et al as modified by Beard discloses the claimed invention except for the reading of product data from a storage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to read product data from storage as taught by

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MAXIM since MAXIM states that such a modification would provide threshold limit values to compare incoming measured values (Page 1 Lines 8-11).

19. In re Claim 14 and 16, MAXIM discloses the use of a low limit voltage value and a high limit voltage value used as threshold values (Page 8 Column 1 Lines 4-7).

20. In re Claim 15, MAXIM discloses a fault signal being activated if the voltage is less than a low limit voltage (Page 8 Column 1 Lines 5-6). The invention of Browning et al as discussed above continuously reduces voltage when a temperature threshold is crossed. If the voltage were to be reduced to a low limit value, the temperature could no longer be lowered through the reduction of the voltage. Identifying the supply voltage reaching a low limit voltage according to the invention of Browning et al would synonymously identify an uncorrectable thermal fault as the temperature could no longer be reduced through reduction of the voltage. Therefore, Browning et al as modified by Beard would signify an uncorrectable fault.

21. In re Claim 17, Browning et al as modified by Beard and MAXIM discloses the claimed invention except for not increasing the supply voltage greater than the high limit voltage value. It would have been obvious to one having ordinary skill in the art at the time the invention was made to not increase the supply voltage greater than the high limit voltage value since it was known in the art that increasing the voltage supplied to a semiconductor chip greater than its rated value could cause damage to the chip and compromise its functionality.

22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Browning et al (U. S. Patent 6,415,388) in view of Beard (U.S. Patent 6,928,559) and Nguyen as applied to claim 11 above, and further in view of Hobson (U. S. Patent 6,112,164).

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23. The teaching of Browning et al as modified by Beard has been discussed above, but does not disclose the step of changing the first predetermined time interval to a second predetermined time interval.

24. Hobson teaches the use of a programmable timer to provide a system management interrupt at a specific interval (Column 2 Lines 39-41). One skilled in the art at the time the invention was made would realize that the programmable timer is capable of having its timing interval changed.

25. The advantage of having a programmable timer that is capable of changing time intervals is to optimally manage the different hysteresis characteristics that may exist in different thermal situations (system temperature rising, system temperature falling, etc.) with time delay as discussed in Beard (Column 7 Lines 4-12) and referenced above.

26. Browning et al as modified by Beard discloses the claimed invention except for the step of changing the first predetermined time interval to a second predetermined time interval. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide the claimed invention of Browning et al as modified by Beard with a programmable timer as taught by Hobson in order to change a first predetermined time interval to a second predetermined time interval in order to manage the different hysteresis characteristics that may exist in different thermal situations with time delay.

27. Browning as modified by Beard and Hobson discloses the claimed invention except for changing the first predetermined time interval to a second predetermined time interval. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to change the value of the time interval to better suite the hysteresis conditions of a thermal system,

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since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher J. Clark whose telephone number is 571-270-1427. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


CJC
04/13/2007

 6/7/07

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